parts, the liquid resins may be coated onto or placed between various supports such as plastic films and paper.

The resin compositions may be cured by various methods such as heating in the presence of known radical generators or curing with ultraviolet radiation in the presence of photo-sensitizers. But in view of the objects of the present invention, the most suitable method is curing with an ionizing radiation which does not involve substantial heat generation, particularly with electron beams generated by means of an electron accelerator. The atmosphere for irradiation may be the air but more desirably, it is an inert gas. There is no particular limitation on the energy of electron beams to be applied but an acceleration voltage of ca. 150 - 500 keV is efficient from the view point of production rate.

Examples of the simple urethane adduct b) as a component of the resin composition (2) include a compound having two molecules of hydroxyethyl acrylate reacted to one molecule of isophorone diisocyanate (the compound is hereunder referred to as IA), a compound having two molecules of hydroxyethyl methacrylate reacted to one molecule of isophorone diisocyanate (the compound is hereunder referred to as IMA) and a compound having two molecules of hydroxyethyl acrylate reacted to one molecule of toluene diisocyanate (the compound is hereunder referred to as TA). It is known to combine compound IA with diesters of polycarboxylic acids and use the combinations as adhesive

compositions but such use differs from the one contemplated by the present invention.

The following examples are provided for the purpose of further illustrating the present invention but are in no way to be taken as limiting.

Example 1

Urethane acrylate (UX 4101 of Nippon Kayaku Co., Ltd.), IA and cyclohexyl acrylate (CHA) were used as compounds a), b) and c), respectively, in preparing sample of the resin composition (2). UX 4101, CHA and IA were mixed in 40, 40 and 20 parts by weight, respectively. The resulting resin composition was applied onto a tin plate having a conical projection that was 3 cm in diameter and 0.5 cm in height. The composition was cured by irradiating on a conveyor to 50 kGy with electron beams (300 keV) generated from a transformer rectified electron accelerator in a nitrogen atmosphere. The cured film was removed from the tin plate. The projecting cone was collapsed and the film was folded to a smaller size. The film remained in the folded state at room temperature. When the film was dipped into hot water at 60 °C, it was restored to the initial shape within 3 seconds. It was also found that the restored shape was identical to the initial shape within a precision of 1%.

Example 2

Various formulations of the resin composition (1) were prepared using urethane acrylate (UX 4101 of Nippon Kayaku Co., Ltd.) or urethane acrylate (UV 7700B of the Nippon Synthetic Chemical Industry Co., Ltd.) as oligomer compound

a), and low-molecular weight compounds that were capable of copolymerizing with the oligomer compound a) (for their names, see Table 1).

Each of the compositions prepared from those formulations was placed between two PET films 50 μm thick and cured by irradiating from both sides to 50 kGy (per side) in the same manner mentioned in Example 1, whereupon smooth-surfaced films having thicknesses of ca. 300 μm were obtained.

These films were subjected to measurements of their tensile characteristics using Strograph R1 (Toyo Seiki Seisaku-sho, Ltd.) at a tension speed of 10 mm/min. The films were also subjected to a 180° bending test, in which the films were bent 180° under a pressure of 1 kg/cm^2 at room temperature. Films that broke in the test were rated × and those which did not break were rated o. The permanent deformability of the films at room temperature was evaluated by measuring the angle of the bend in the samples that were left to stand for 24 hours after the 180° bend test. Films with a bend angle greater than 90° were rated o, those having a bend angle of 90° and smaller were rated Δ, and those in which the fold disappeared were rated x. The films that had been subjected to the 180° bend test were set in an oven and the temperature was raised stepwisely by 5°C. The temperature at which the fold disappeared was defined as the "shape recovery temperature".

The results of various tests and measurements are shown in Tables 2 and 3.